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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,202	06/23/2006	Claire Divoux	292748US2PCT	9110
22850	7590	03/10/2010	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			TAMAI, KARL I	
			ART UNIT	PAPER NUMBER
			2834	
			NOTIFICATION DATE	DELIVERY MODE
			03/10/2010	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/584,202	<b>Applicant(s)</b> DIVOUX, CLAIRE	
	<b>Examiner</b> KARL I.E. TAMAI	<b>Art Unit</b> 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 63-124 is/are pending in the application.
- 4a) Of the above claim(s) 68-71,75-77,83-86,89-91,93-99 and 102-124 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 63-67,72-74,78-82,87,88,92,100 and 101 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claim 94 was previously considered by the examiner but is now withdrawn from the examiners consideration as not being within the elected species, figure 1-4, 13A and 14A. Applicant's argument clearly indicates the claim is drawn to species figure 5.

### ***Drawings***

2. The objection to the drawings are withdrawn..

### ***Specification***

3. The amended title, "ELECTROSTATIC ACTUATION DEVICE WITH MOBILE AND FIXED ELECTRODES" of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The examiner suggests "ELECTROSTATIC ACTUATION DEVICE WITH A MOBILE ELECTRODE BEARING AGAINST A PIVOT BY ACTUATED FIXED ELECTRODES".

### ***Claim Objections***

4. The objection to Claims 63-67, 72-74, 100, and 101 is withdrawn.

### ***Claim Rejections - 35 USC § 112***

5. The rejection of Claim 94 under 35 U.S.C. 112, first paragraph, is withdrawn.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 63-65, 67, 72-74, and 100 are rejected under 35 U.S.C. 102(b) as being anticipated by Pizzi (EP 1026536). Pizzi teaches an electrostatic actuation with at least one mobile electrode 5 that is flexible and free to move with respect to a substrate 1, with at least two fixed electrodes 2, 3 which are located on a same side the mobile electrode 5 and each facing the bottom of mobile part of the mobile electrode 5, with a means for forming at least one pivot 7 of at least one portion of the mobile electrode 5, and where the mobile electrode 5e bears on the pivot 7 (see figure 3) when fixed electrode 2 attracts a first portion of the mobile electrode 5, the other portion electrode 5d is configured to move from the substrate 1 by mechanical return forces. It is inherent that the two fixed electrodes are configured to progressively force the mobile part of the mobile electrode facing each of the fixed electrodes (see figures 1-3), respectively, to contact the substrate as a function of applied voltage, because the electrodes are supported at only one end 5a, they will progressively force the mobile electrode into contact starting from the smallest gap between the electrode to the largest gap.

In regards to claim 64, Pizzi teaches the electrode 5e extends in the height direction perpendicular to the substrate (see figure 3).

In regards to claim 65, Pizzi teaches the fixed electrodes 2, 3 separated by insulation layer 4 from the mobile electrode 5.

In regards to claim 67, Pizzi shows the pivot 7 to be fixed to the substrate (in the same position) during operation, inherently by at least friction because the pivot does not move.

In regards to claim 72, Pizzi teaches the fixed electrode 5 is fixed to the substrate on the ends 5a, 5b at the insulating layer 4.

In regards to claim 73, Pizzi teaches each fixed electrode 2, 3, being located to face at least one end of the mobile electrode 5a, 5b (respectively) on one side of the means for forming the at least one pivot 7 (see figures 1-3).

In regards to claim 74. Pizzi teaches the mobile electrode 5 having at least two mobile parts 5d, 5e, each mobile part being free to move at one of its ends (end on the pivot 7), and fixed to the substrate 1 at the other 5a, 5b.

In regards to claim 100, Pizzi teaches two electrodes 5, 2 separated by a dielectric (air and insulator 4) which is inherently a capacitor.

8. The prior art rejections over Rauch et al. (Rauch)(US 5408355) and Garcia (US 6220561) are withdrawn.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pizzi (EP 1026536), in further view of Clark et al. (Clark)(US 6384952). Pizzi teaches every aspect of the invention except the mobile/flexible electrode connected to a mirror membrane by a pad. Clark teaches an electrostatic actuator with the moving electrodes connected to a mirror membrane by a pad 540 to provide superior optical (col. 5, lines 60-65). It would have been obvious to a person of ordinary skill in the electrostatic actuator art to construct the actuator of Pizzi with the flexible electrode connected to a mirror membrane by a pad to provide superior optical characteristics from the electrostatically controlled actuator, as taught by Clark.

11. Claims 78, 79, 80, 82, 87, 88, and 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pizzi (EP 1026536), in further view of Fleming (US 5867302). Pizzi teaches every aspect of the invention except mobile part having at least two electrodes separated by an insulating part. Fleming teaches the movable being two electrodes 24 separated by an insulating part 14 (col. 3, line 27) to allow for individual control/addressing of the electrodes. It would have been obvious to a person of ordinary skill in the electrostatic actuator art to construct the actuator of Pizzi mobile part having at least two electrodes separated by an insulating part to provide individual control over the electrode pairs as taught by Fleming.

In regards to claim 79, Pizzi teaches the mobile part is free to at 5e and 5d are free to move perpendicular to the substrate 1.

In regards to claim 80, 92, Pizzi teaches two fixed electrodes 2, 3.

In regards to claim 82, Pizzi shows the pivot 7 to be fixed to the substrate (in the same position) during operation, inherently by at least friction because the pivot does not move.

In regards to claim 87, Pizzi teaches the fixed electrode 5 is fixed to the substrate on the ends 5a, 5b at the insulating layer 4.

In regards to claim 88, Pizzi teaches each fixed electrode 2, 3, being located to face at least one end of the mobile electrode 5a, 5b (respectively) on one side of the means for forming the at least one pivot 7 (see figures 1-3).

12. Claims 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pizzi (EP 1026536) and Fleming (US 5867302), in further view of Clark et al. (Clark)(US 6384952). Pizzi and Fleming teach every aspect of the invention except the mobile/flexible electrode connected to a mirror membrane by a pad. Clark teaches an electrostatic actuator with the moving electrodes connected to a mirror membrane by a pad 540 to provide superior optical (col. 5, lines 60-65). It would have been obvious to a person of ordinary skill in the electrostatic actuator art to construct the actuator of Pizzi and Fleming with the flexible electrode connected to a mirror membrane by a pad to provide superior optical characteristics from the electrostatically controlled actuator, as taught by Clark.

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13. Claim 101 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pizzi (EP 1026536), in further view of Fleming (US 5867302). Pizzi teaches every aspect of the invention except the means for forming the pivot being used to hold a point of a mobile electrode at a height of between 50 nm and 20  $\mu$ m with respect to the substrate. Fleming teaches the spacing between the electrostatic electrodes is between 0.5 – 2  $\mu$ m (sacrificial layer 26 forming the gap, col. 4, line 43). It would have been obvious to a person of ordinary skill in the electrostatic actuator art to construct the actuator of Pizzi with the means for forming the pivot being used to hold a point of a mobile electrode at a height of between 50 nm and 20  $\mu$ m with respect to the substrate optimize the capacitance of the actuator, as taught by Fleming to provide an effective electrostatic actuator.

### ***Response to Arguments***

14. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new grounds of rejection. Applicant's argument regarding claim 94 is not persuasive. Figure 5 and the description was not part of the elected species, the claim is withdrawn from consideration.

### ***Conclusion***

15. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036. The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mrs. Quyen Leung, can be reached at (571) 272 - 8188. The facsimile number for the Group is (571) 273 - 8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Karl I Tamai/  
PRIMARY PATENT EXAMINER

March 2, 2010

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